

Application No. 10/711,476
Technology Center 2878
Amendment dated February 22, 2007
Reply to Office Action dated November 22, 2006

Amendments to the Specification:¹

Please replace paragraph [Para 21] with the following amended paragraph:

In Figure 2, a chip carrier 122 in the form of a flexible substrate is laminated to a surface of the glass substrate 118 ~~substrate 18~~ opposite the housing 116. The portion of the housing 116 defining the opening 134 is represented as abutting and bonded to a surface of the chip carrier 122. The chip 120 is physically attached to an opposite surface of the chip carrier 122 with electrically-conductive connections 124, which also electrically connect the chip circuitry to conductors 126 on the chip carrier 122. Connection to the conductors 126 can be through bond pads formed on the carrier 122 or portions of the conductors 126 defined by a cover layer or photoimageable mask on the carrier 122. According to conventional flip-chip technology, the connections 124 are preferably reflowed solder bump joints spaced along the perimeter of the chip 120, individually interconnecting the conductors 126 with bond pads on the chip 120. It

¹ All references to pages and paragraphs in Applicant's electronically-filed application are those inserted by the USPTO authoring software.

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is envisioned that other contact technologies, including, for example gold stud bumps, may be similarly employed. As a flexible substrate (flex circuit), the chip carrier 122 comprises an electrically-insulating polymer material such as a polyimide or polyester film, such as in the form of a flat cable, with the conductors 126 serving as circuitry traces for the chip 120 as well as any other surface-mount components (not shown) on the chip carrier 122. While a flexible substrate is a preferred configuration for the chip carrier 122, other suitable substrates could be used. Polymer materials suitable for the carrier 122 are generally semitransparent, such that light is able to pass through the carrier 122 to a degree that the sensitivity of the module 110 would be impaired. As such, the chip 120 is mounted over an opening 136 in the chip carrier 122, so that light passing through the housing 116, lenses 114 and glass substrate 118 is able to freely pass through the carrier 122 and impinge the light-sensing elements on the chip 120.